OWNER'S MANUAL

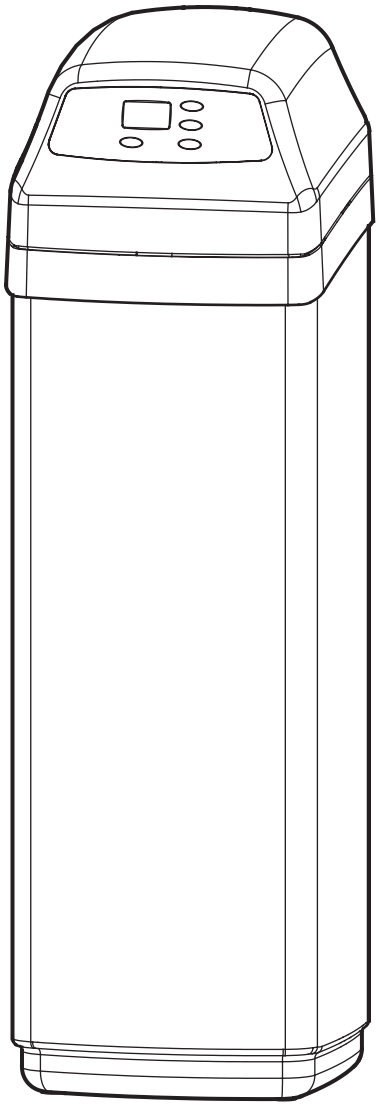
How to install, operate and maintain your

EcoWater Systems
Central Water Filtration System

ECOWATER SYSTEMS®

A Marmon Water/Berkshire Hathaway Company

The Science Behind Better Water™



Model ECWS

ENERGY STAR

Powered by an ENERGY STAR® qualified adapter for a better environment

System tested and certified by NSF International against NSF/ANSI Standard 42.
See performance data sheet for details.

INDEPENDENTLY NSF CERTIFIED

Printed on recycled paper

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TABLE OF CONTENTS

Page

Specifications & Dimensions 3
Installation Requirements 4-5
Installation 6-9
How a Central Water Filtration System Works 10
Start Up Procedure 11
Programming the Electronic Controller 12
Customizing Features / Options 13-15
Care of the Central Water Filtration System 16
Troubleshooting 17-18
Service Information 19-22
Repair Parts 24-27
Warranty 28

SAFETY GUIDES

Follow the installation instructions carefully. Failure to install the EcoWater Systems Central Water Filtration System properly **voids the warranty.**

Before you begin installation, read this entire manual. Then, obtain all the materials and tools you will need to make the installation.

Check local plumbing and electrical codes. The installation must conform to them.

Use only lead-free solder and flux for all sweat-solder connections, as required by state and federal codes.

Use care when handling the EcoWater Systems Central Water Filter. Do not turn upside down, drop, or set on sharp protrusions.

Do not locate the EcoWater Systems Central Water Filter where freezing temperatures occur. Do not attempt to treat water over 120°F. **Freezing, or hot water damage voids the warranty.**

Avoid installing in direct sunlight. Excessive sun heat may cause distortion or other damage to non-metallic parts.

The EcoWater Systems Central Water Filter requires a minimum water pressure of 30 psi at the inlet. **Maximum allowable inlet water pressure is 125 psi.** If daytime pressure is over 80 psi, nighttime pressure may exceed the maximum. Use a pressure reducing valve if necessary (Adding a pressure reducing valve may reduce the flow).

The EcoWater Systems Central Water Filter works on **24 volt, 60 Hz electrical power only.** Be sure to use the included transformer and plug it into a nominal 120V, 60 Hz household outlet that is in a **dry location only**, grounded and properly protected by an over current device such as a circuit breaker or fuse. If transformer is replaced, use only the authorized service, Class II, 24V, 10 VA transformer.

This system is not intended to be used for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

European Directive 2002/96/EC requires all electrical and electronic equipment to be disposed of according to Waste Electrical and Electronic Equipment (WEEE) requirements. This directive or similar laws are in place nationally and can vary from region to region. Please refer to your state and local laws for proper disposal of the equipment.

SPECIFICATIONS

	Model ECWS
Model Code	EC
Nominal Mineral Tank Size	8” dia. x 35”
Rated Service Flow Rate	6.0 gpm
Pressure Drop at Rated Service Flow	4 psig*
Pressure Drop at 12 gpm	9 psig*
Water Pressure Limits (minimum / maximum)	30 - 125 psi
Water Temperature Limits (minimum / maximum)	40 - 120 °F
Rated Capacity at Chlorine Concentration** of: 0.50 ppm 0.75 ppm 1.0 ppm 1.5 ppm 2.0 ppm	2,780,000 gal.* 1,850,000 gal.* 1,390,000 gal.* 925,000 gal.* 695,000 gal.
Backwash Time, default (length is adjustable)	2 minutes
Fast Rinse Time, default (length is adjustable)	1 minute
Drain Flow Rate (during Backwash & Fast Rinse)	3.0 gpm
Amount of Activated Carbon	12 pounds (0.40 cu. ft.)
Amount of Filter Sand	5 pounds
Amount of Gravel	6 pounds

* From independent laboratory test data.

** Typical residential chlorine concentration is 0.5 to 1.0 ppm.

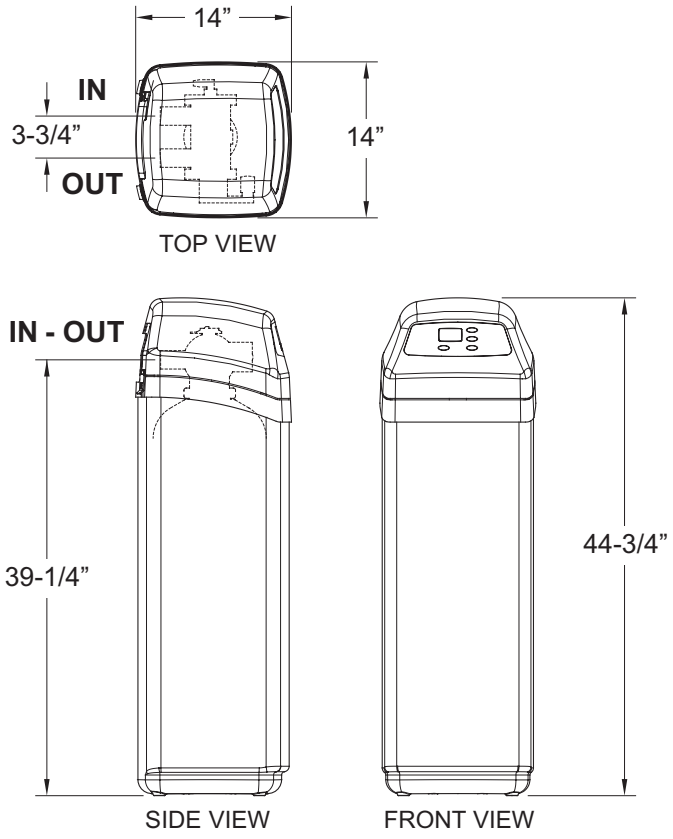


FIG. 1

TOOLS NEEDED

Assemble the required tools before starting installation. Read and follow instructions provided with any tools listed here.

- Screwdriver
- Tape measure
- Pliers

If using Soldered Copper Pipe

- Tubing cutter
- Lead-free solder and flux
- Propane torch
- Emery cloth, sandpaper or steel wool
- Misc. copper pipe fittings

If using Threaded Pipe

- Pipe cutter or hacksaw
- Pipe joint compound
- Threading tool
- Misc. threaded pipe fittings

If using CPVC Plastic

- Pipe cutter
- Solvent cement
- Hacksaw
- Primer
- Adjustable wrench

If using Other

- Other pipe and fittings suitable for potable water as required by piping system manufacturer and local codes and/or ordinances.

LOCATION REQUIREMENTS

Consider the following when selecting an installation location for the Central Water Filtration System.

- Do not operate the Central Water Filtration System where freezing temperatures occur. Do not attempt to treat water over 120ºF. Freezing temperatures or hot water damage voids the warranty.
- To condition all water in the home, install the Central Water Filtration System close to the water supply inlet, and before all other plumbing connections, except outside water pipes.
- A nearby drain is needed to carry away Clean Rinse discharge water. Use a floor drain, laundry tub, sump, standpipe, or other options (check your local codes). See "Air Gap Requirements" and "Valve Drain Requirements" sections. If a drain is not available, it is still possible to operate the Central Water Filtration System in a manual Clean Rinse mode. See “Operating in Manual Clean Rinse Mode.” The automatic Clean Rinse must be disabled if the Central Water Filtration System will not be connected to a drain (See Page 15).
- The Central Water Filtration System works on 24 volt, 60 Hz electrical power only, supplied by a direct plug-in transformer (included). Provide an electrical outlet in accordance with NEC and local codes.
- Do not install the Central Water Filtration System on a hot water line (See Figure 2 below).
- Install the Central Water Filtration System between the home’s incoming water supply and the water softener, if one is being used (See Figure 2).

THE PROPER ORDER TO INSTALL WATER TREATMENT EQUIPMENT

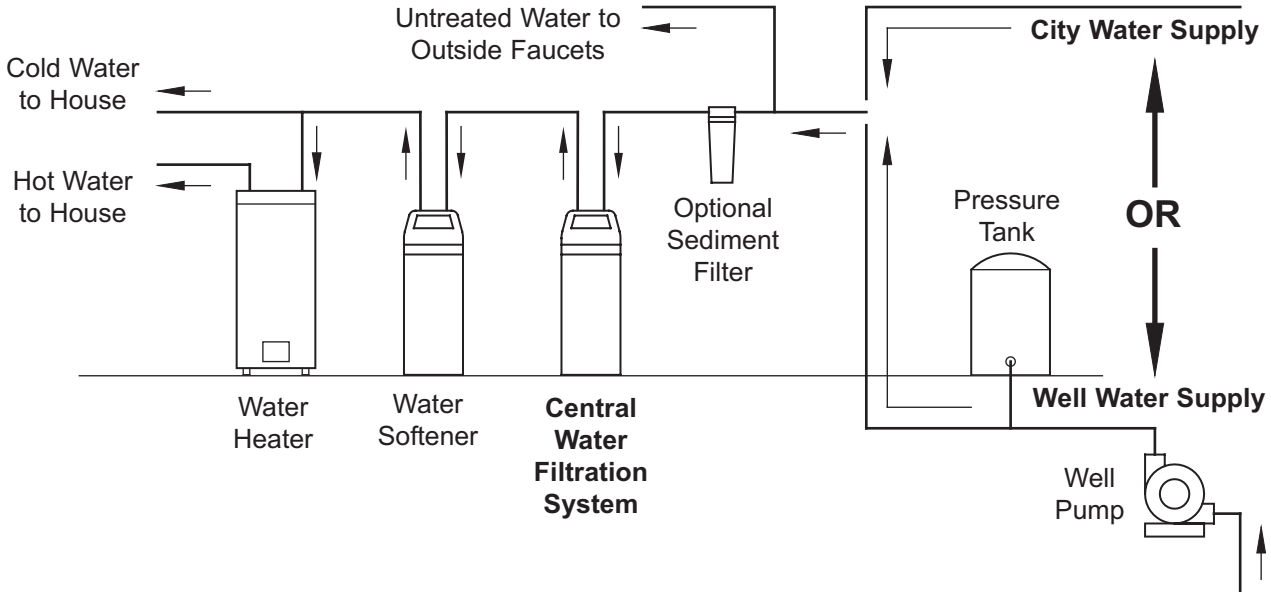


FIG. 2

PLUMBING CODES

All plumbing must be completed in accordance with national, state and local plumbing codes.

In the state of Massachusetts: The Commonwealth of Massachusetts plumbing code 248-CMR shall be adhered to. A licensed plumber shall be used for this installation.

AIR GAP REQUIREMENTS

A drain is needed for Clean Rinse discharge water. A floor drain, close to the Central Water Filtration System, is preferred. A laundry tub, standpipe, etc. are other drain options. Secure valve drain hose in place. Leave an air gap of 1-1/2” between the end of the hose and the drain. This gap is needed to prevent backflow of sewer water into the Central Water Filtration System . Do not put the end of the drain hose into the drain.

VALVE DRAIN REQUIREMENTS

Using the flexible drain hose (included), measure and cut to the length needed. Flexible drain hose is not allowed in all localities (check your plumbing codes). If local codes do not allow use of a flexible drain hose, a rigid valve drain run must be used. Purchase a compression fitting (1/2 NPT x 1/2 in. minimum tube) and 1/2" tubing from your local hardware store. Plumb a rigid drain as needed (see Figure 3, below).

NOTE: Avoid drain hose runs longer that 30 feet. Make the valve drain line as short and direct as possible.

It is recommended that the Central Water Filtration System be installed near a drain. However, if a drain is not available, it is still possible to operate the Central Water Filtration System in a manual Clean Rinse mode. See “Operating in Manual Clean Rinse Mode” section. The automatic Clean Rinse function must be disabled if the Central Water Filtration System will not be connected to a drain.

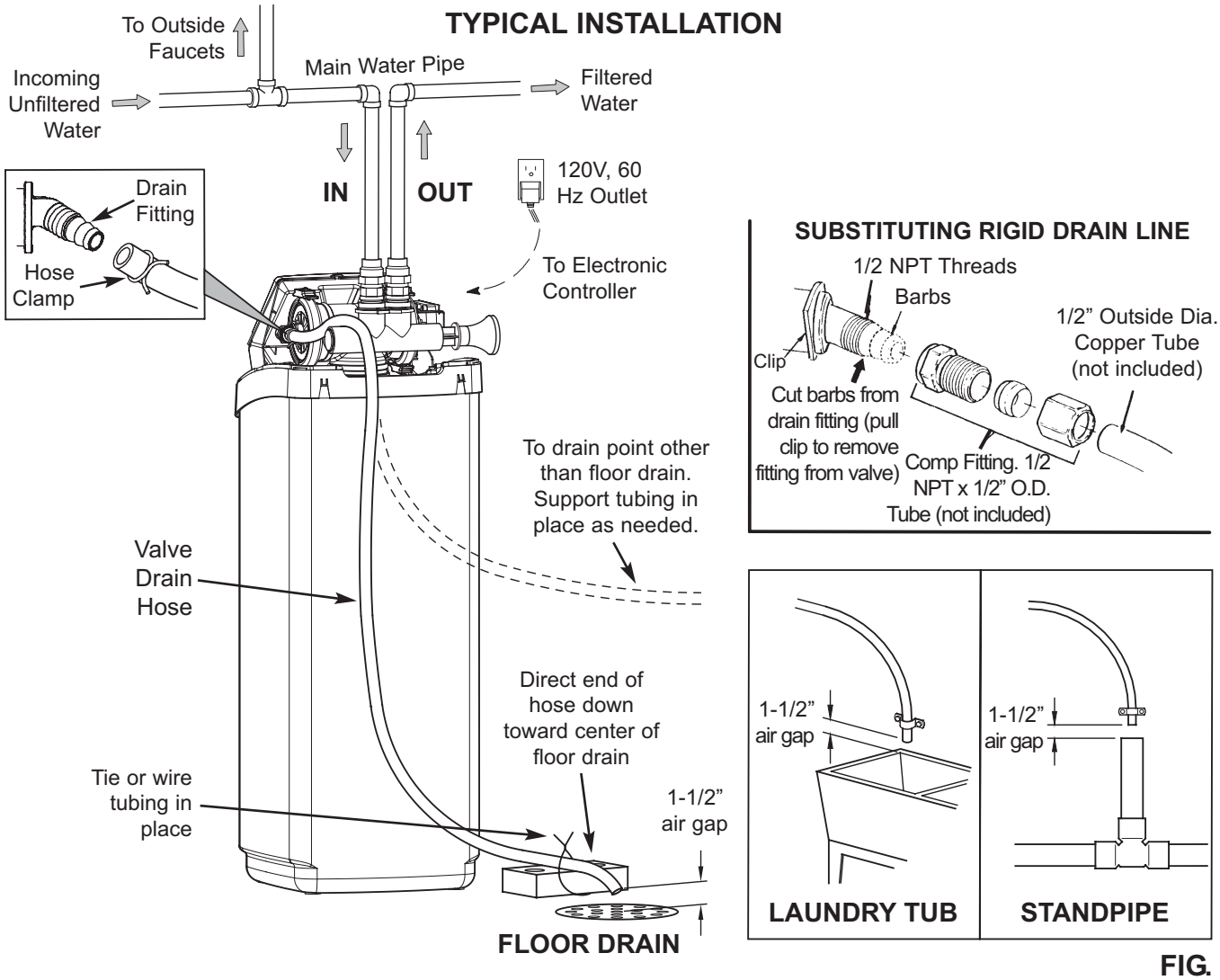


FIG. 3

1. UNPACKING

EcoWater Systems Central Water Filtration System is shipped from the factory in one master carton. The carton also includes a bag of small parts needed to assemble and install the unit, plus this manual.

Thoroughly check the Central Water Filtration System for possible shipping damage and parts loss. Also inspect and note any damage to the shipping carton. Notify the transportation company if damage is present. EcoWater Systems is not responsible for in-transit damages.

Remove and discard (RECYCLE) all packing materials. We suggest you keep the small parts in the bag(s) until you are ready to use them.

2. INSTALL BYPASS VALVE and/or COPPER TUBES

NOTE: Before installing the bypass valve or copper tube into the valve's OUTLET, make sure that the turbine and support are firmly in place, as shown in Figure 6.

a. If installing an **EcoWater Systems Bypass Valve**, put lubricated o-ring seals onto both bypass valve ports (See Figure 4). Carefully slide the bypass valve into the filter valve and install the "C" clips.

b. Slide a lubricated o-ring seal onto each of the copper tubes. Carefully insert the copper tubes into the bypass valve (See Figure 4), or into the filter valve (Figure 5). Then install the "C" clips.

NOTE: For lubrication, use silicone grease approved for potable water supplies.

3. TURN OFF WATER SUPPLY

a. Close the main water supply valve near the well pump or water meter.

b. Shut off the electric or fuel supply to the water heater.

c. Open high and low faucets to drain all water from the house pipes.

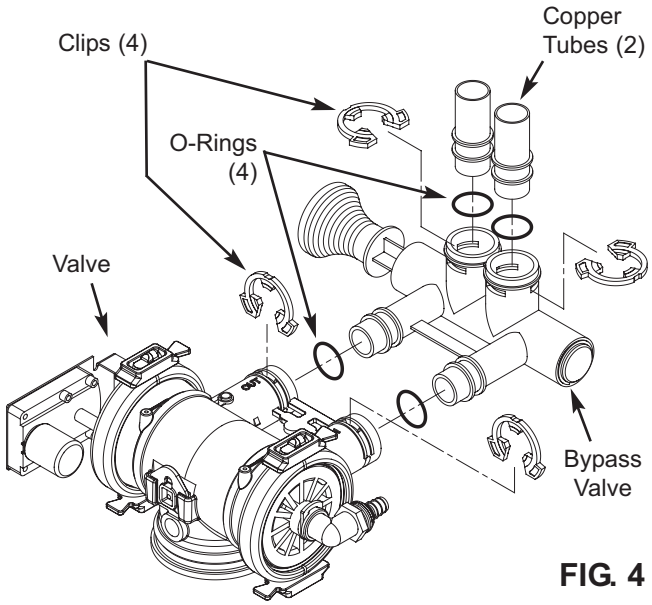


FIG. 4

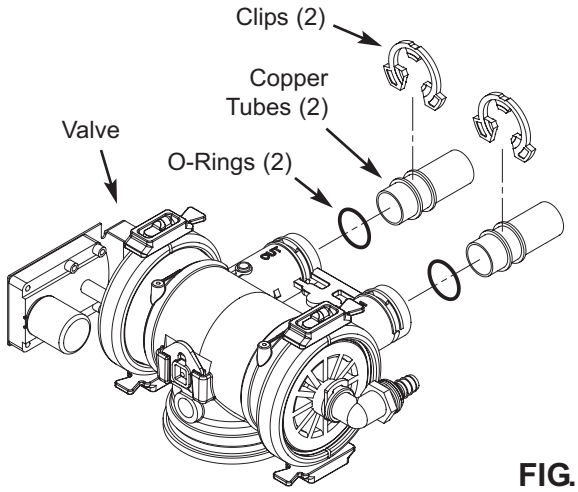


FIG. 5

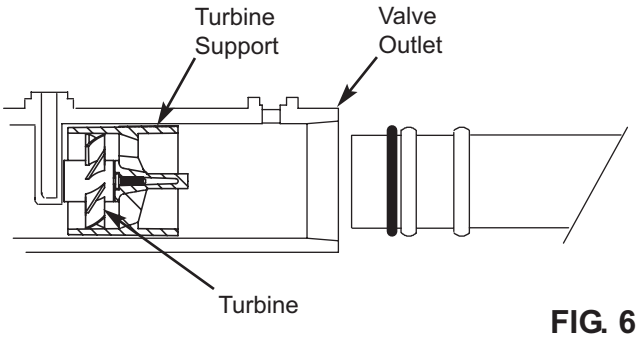


FIG. 6

4. INSTALLING THREE-VALVE BYPASS

If installing a 3-valve bypass system, plumb as needed using Figure 7 as a guide. When installing sweat copper, be sure to use lead-free solder and flux, required by federal and state codes. Use pipe joint compound on outside pipe threads.

5. ASSEMBLE INLET & OUTLET PLUMBING

Measure, cut, and loosely assemble pipe and fittings from the main water pipe (or from the bypass valves installed in Step 4), to the inlet and outlet copper tubes, installed in Step 2b.

Be sure **incoming water** supply pipe goes to the **valve inlet** side. Trace the water flow direction to be sure.

6. CONNECT INLET & OUTLET PLUMBING

a. SOLDERED COPPER

(1) Thoroughly clean and flux all joints.

(2) Pull the plastic “C" clips and remove the inlet and outlet tubes from the valve. Remove o-rings from the tubes. **DO NOT solder with tubes in the valve.** Soldering heat will damage the valve.

NOTE: If installing a ground as shown in Figure 9, place ground clamps on copper tubes before soldering (See Step 6a).

(3) Make all solder connections. Be sure to keep fittings fully together, and pipes square and straight.

b. THREADED PIPE

(1) Apply pipe joint compound to all outside pipe threads.

(2) Tighten all threaded joints.

(3) If soldering to the inlet and outlet tubes, observe Step 6a above.

c. CPVC PLASTIC PIPE

(1) Clean, prime and cement all joints, following the manufacturer's instructions supplied with the plastic pipe and fittings.

(2) If soldering to the inlet and outlet tubes, observe Step 6a above.

3 VALVE BYPASS

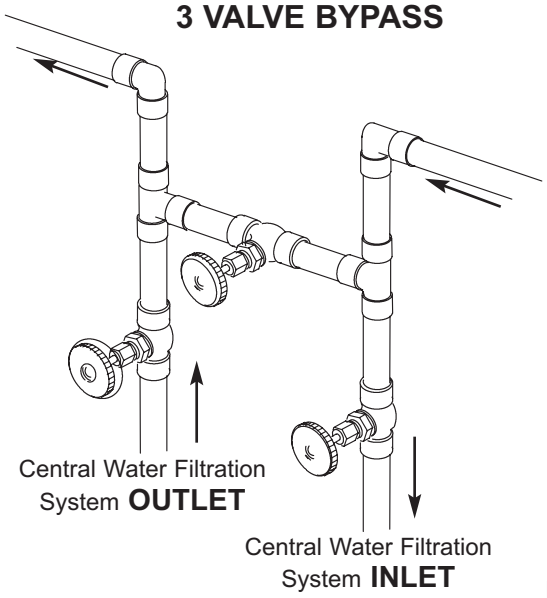


FIG. 7

CROSS OVER

In what direction does the water flow?

Be sure to plan piping so water flow is to the Central Water Filtration System valve INLET. Plan a crossover if flow is from left to right.

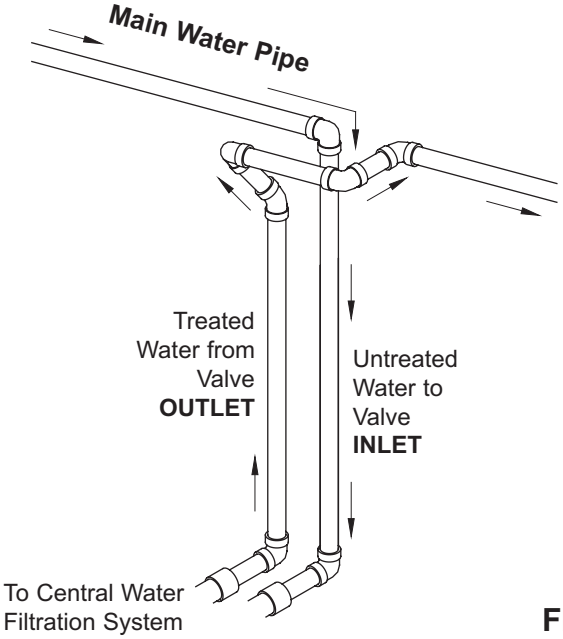


FIG. 8

7. COLD WATER PIPE GROUNDING

The house cold water pipe (metal only) is often used as a ground for the house electrical system. The 3-valve bypass type of installation, shown in Figure 7, will maintain ground continuity. If you use the plastic bypass, continuity is broken. To restore the ground, do either step **7a** or **7b** following.

a. Use the ground clamp kit (included) to make a jumper across the inlet and outlet copper tubes (See Figure 9).

b. Install a #4 copper wire across the removed section of main water pipe, securely clamping at both ends (See Figure 10) – parts not included.

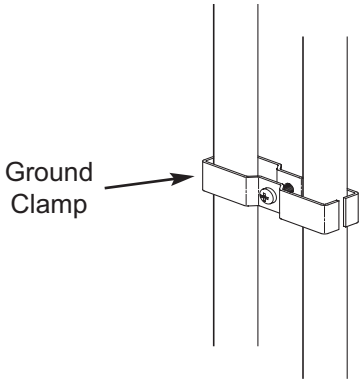


FIG. 9

8. INSTALL VALVE DRAIN HOSE

NOTE: See valve drain options on Page 5.

a. Connect a length of 1/2" I.D. hose (check codes) to the valve drain elbow, on the controller. Use a hose clamp to hold the hose in place. Route the hose out through the notch in the back of the top cover.

b. Avoid drain hose runs longer that 30 feet. Make the valve drain line as short and direct as possible.

c. Run the hose to the floor drain, and as typically shown in Figure 3, tie or wire the end to a brick or other heavy object. This will prevent “whipping” during recharges. Be sure to provide a 1-1/2" minimum air gap, to prevent possible sewer water backup (See “Air Gap Requirements” section).

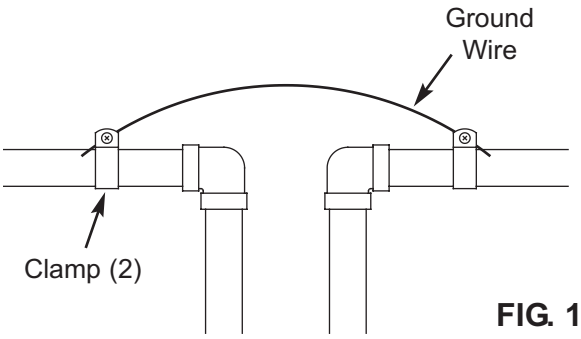


FIG. 10

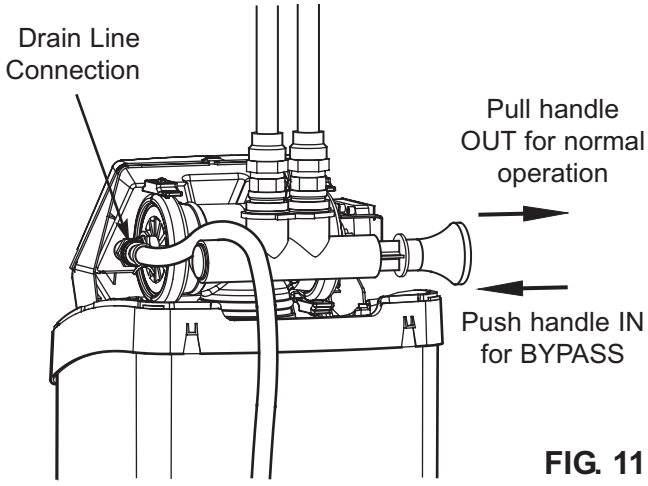


FIG. 11

9. PRESSURE TESTING FOR LEAKS

To prevent excessive air pressure in the EcoWater Central Water Filtration System and plumbing system, do the following steps EXACTLY in order:

a. Fully open two or more **filtered** cold water faucets nearby the EcoWater Systems filter.

b. Place the bypass valve(s) in **bypass** position (See Figures 32 & 33 on Page 22).

c. Fully open the main water supply valve. Watch until the flow from the opened faucets becomes steady, with no spurting or air bubbles.

d. **EXACTLY** as follows, place bypass valve(s) into **service**:

(1) SINGLE BYPASS VALVE: **Slowly** move the valve stem toward **service** position, pausing several times to allow the unit to pressurize slowly.

(2) 3-VALVE BYPASS: Fully close the **bypass** valve and open the **outlet** valve. **Slowly** open the **inlet** valve, pausing several times to allow the unit to pressurize slowly.

e. After about three minutes, open a hot water faucet for one minute, or until all air is expelled, then close.

f. Close all cold water faucets and check your plumbing work for leaks.

IMPORTANT: Start up procedure must be run prior to using any filtered water. Follow the instructions at right and on Page 11.

10. CONNECT TRANSFORMER

a. During installation, the Central Water Filtration System wiring may be moved or jostled from place. Check to be sure all leadwire connectors are secure on the back of the electronic control board (See Figure 31 on Page 21) and be sure all wiring is away from the valve gear and motor area, which rotates during Clean Rinse cycles.

b. Plug the transformer into a continuously “live,” grounded, 120V, 60Hz house electrical outlet, in a dry location and approved by local codes. **The unit works on 24V only. Do not connect without the transformer.**

11. SET PRESENT TIME ON THE ELECTRONIC CONTROLLER

In the display, the words “PRESENT TIME” appear and 12:00 PM begins to flash. Set the clock according to the “Set Time of Day” section on Page 12.

12. RUN START UP PROCEDURE

Run the Start Up Procedure, as detailed on Page 11, to purge the system of fine carbon particles.

13. RESTART THE WATER HEATER

Once the Start Up Procedure has been completed, turn on the electric or fuel supply to the water heater, and light the pilot, if applies.

NOTE: The water heater is filled with unfiltered water and, as hot water is used, it refills with filtered water. In a few days, the hot water will be fully filtered. To have fully filtered hot water immediately, wait until the start up procedure (Step 12) is complete, then drain the water heater until water runs cold.

NORMAL OPERATION

During normal operation water enters the Central Water Filtration System and flows through several filtration processes where tastes, odors and sediment are reduced.

CLEAN RINSE CYCLE

A Clean Rinse cycle will automatically be initiated based on how many gallons of water have been filtered through the system (or after 14 days if no water has passed through the system in that time). The Clean Rinse cycle lifts and expands the media bed to rejuvenate the media and then repacks the bed for continued use. During the Clean Rinse cycle, dirt, sediment, etc. are flushed from the Central Water Filtration System down the drain.

APPLICATIONS FOR A CENTRAL WATER FILTRATION SYSTEM

- Do not use the Central Water Filtration System with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.
- The Central Water Filtration System may not be an effective treatment method for water sources with a hydrogen sulfide problem (rotten egg odor or taste).
- The Central Water Filtration System will not remove iron and is not intended to replace iron treatment equipment.
- Although the Central Water Filtration System has sediment filter capabilities, additional sediment filtration may be needed in problem water applications.

IMPORTANT:

Run the start up cycle immediately after completing installation, before using any water in the home.

The filtration media in this Central Water Filtration System contains a small number of harmless activated carbon particles generated during shipping that are small enough to exit the system with water flow. It is normal for these particles to cause a temporary discoloration of the water coming out of the system. To avoid discolored water at your home's faucets the system's start up cycle should be initiated to rinse the particles and any discolored water down the drain.

If the Central Water Filtration System is used without first running the start up cycle, you will notice that the water will temporarily have a gray color until the particles have exited the system.

To Initiate the start up cycle:

1. Make sure the drain hose is attached to the Central Water Filtration System and the other end is secured over a drain (see Figure 3 on Page 5).
2. Make sure bypass valve is in the "service" (open or filtered water) position and the home's water supply is turned on.
3. Press and hold the RECHARGE button to initiate the start up cycle. The button can be released when you hear the valve changing position and "RECHARGE NOW" flashes in the display.

During the start up cycle:

Throughout the start up cycle you will hear the valve changing position and notice the flow of water to drain starting and stopping. The start up cycle will take approximately 20 minutes. Avoid using water during this time. Do not set the time of day or press other buttons during the start up cycle, as this will interrupt the start up cycle. Do not unplug the transformer during the start up cycle. If the start up cycle is interrupted, it should be initiated again and allowed to run to completion.

After the start up cycle:

Once the start up procedure completes successfully, it cannot be initiated a second time. The Central Water Filtration System will automatically return to the normal operation position. Once the start up cycle has run, a faucet in the home should be opened and water allowed to run for 10 minutes at the system's rated flow. If, after running the start up cycle, the water still appears discolored, manually run Clean Rinse cycles (See Page 13) until the water is clear.

If the time of day was not set before the start up cycle, set it now (See Page 12).

Check the new plumbing connections and joints once more for leaks.

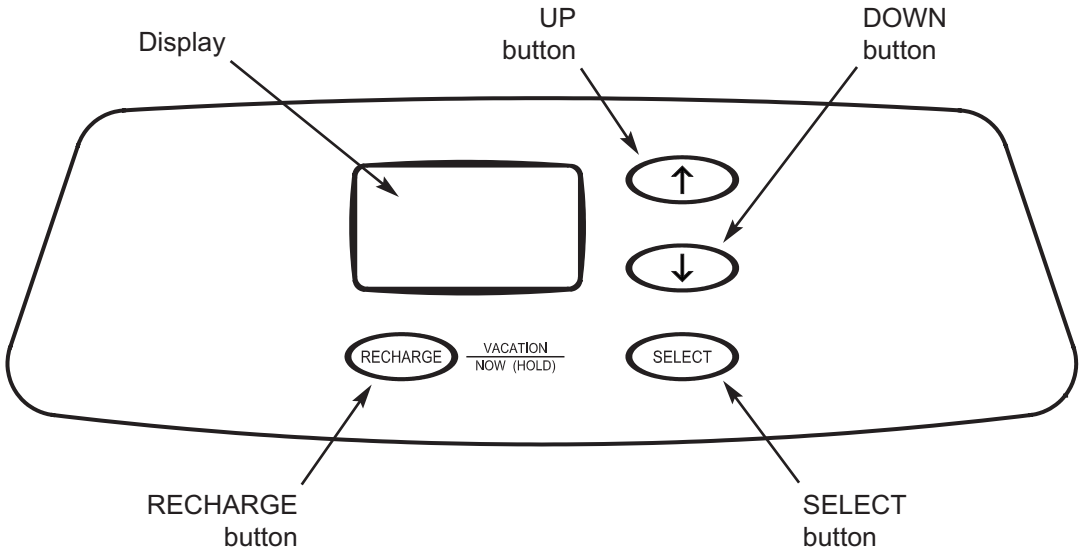
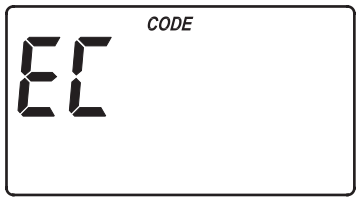


FIG. 12

When the transformer is initially plugged into the electrical outlet, the model code (EC) and a test number (example: J1.4), begin to flash in the faceplate display. Then, 12:00 PM and the words “PRESENT TIME" begin to flash.

NOTE: If “- - - -” shows in the display, press the ↑ UP or ↓ DOWN button until “EC” shows in the display. Then, press the SELECT button to set, and change to the flashing “PRESENT TIME" display.



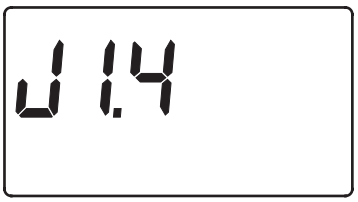


FIG. 13

SET TIME OF DAY

If the words “PRESENT TIME" do not show in the display, press the SELECT button until they do.

1. Press the ↑ UP or ↓ DOWN buttons to set the present time. Up moves the display ahead; down sets the time back. Be sure AM or PM is correct.

NOTE: Press buttons and quickly release to slowly advance the display. Hold the buttons down for fast advance.

2. Press the SELECT button a few times, until the time appears on the display, but is not flashing.

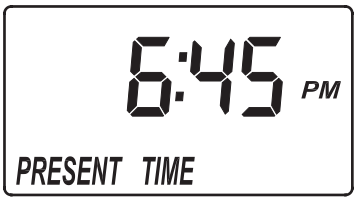


FIG. 14

START A CLEAN RINSE CYCLE

To manually start a Clean Rinse cycle, press and hold the RECHARGE button for a few seconds, until “RECHARGE NOW” flashes in the display. This Clean Rinse cycle takes 3 minutes (unless the factory settings for backwash and fast rinse times have been changed, as shown below).

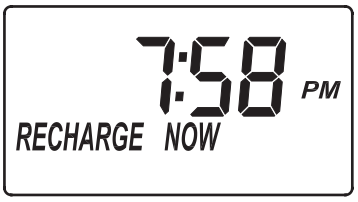


FIG. 15

SET CLEAN RINSE START TIME

By default the Central Water Filtration System will Clean Rinse at 1:00 a.m. The system will not filter water during the Clean Rinse cycle. It is recommended that the Clean Rinse start time be set for when water is not likely to be used in the household.

NOTE: If you also have a water softener, set the Central Water Filtration System’s Clean Rinse time for either one hour before or two hours after the water softener’s scheduled regeneration time.

To change the Clean Rinse start time:

1. Press the SELECT button a few times until “RECHARGE TIME” is shown in the display.

2. Press the ↑ UP or ↓ DOWN buttons to set the Clean Rinse time in 1 hour increments. Be sure AM or PM is correct.

3. When the desired Clean Rinse time is displayed, press the SELECT button a few times, until the time appears in the display, but is not flashing.

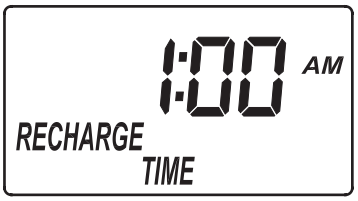


FIG. 16

12 OR 24 HOUR CLOCK

The electronic controller has been factory preset to display a 12 hour clock (AM / PM). If you prefer, you may change this to display a 24 hour clock.

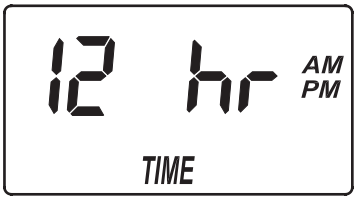
1. Press and hold the SELECT button for a few seconds, until the “000--” screen appears, as shown at right.

2. Press the SELECT button once and “12 hr" will flash in the display.

3. Use the ↑ UP button to change to a 24 hour clock display.

4. Press the SELECT button several times to advance through the remaining screens and return to the normal operation (time of day) display.

5. To change back to a 12 hour clock, follow Steps 1 through 4, above, except use the ↓ DOWN button in Step 3.



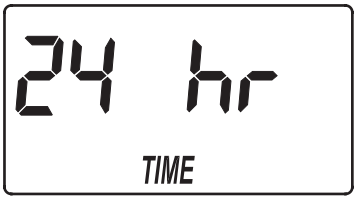


FIG. 17

SET LENGTH OF CLEAN RINSE

By default the Central Water Filtration System’s Clean Rinse cycle will consist of a 2 minute backwash followed by a 1 minute fast rinse. This should be sufficient for most applications.

Increasing the length of Clean Rinse time will increase the amount of water flushed to drain during each Clean Rinse cycle. Increasing the length of Clean Rinse should only be done in cases of very high amounts of sediment, or other water issues.

continued on next page

continued from previous page

To change the length of the **backwash** or **fast rinse** parts of the Clean Rinse cycle:

1. Press and hold the SELECT button for a few seconds, until the “000--” screen appears, as shown at right.
2. Press the SELECT button twice, so “SET TIME bA” appears in the display.
3. Press the ↑ UP or ↓ DOWN buttons to set the length of backwash in minutes.
4. Press the SELECT button when the desired backwash time is shown. “SET TIME Fr” appears in the display.
5. Press the ↑ UP or ↓ DOWN buttons to set the length of fast rinse in minutes.
6. Press the SELECT button when the desired fast rinse time is shown. The display will change to the time of day.

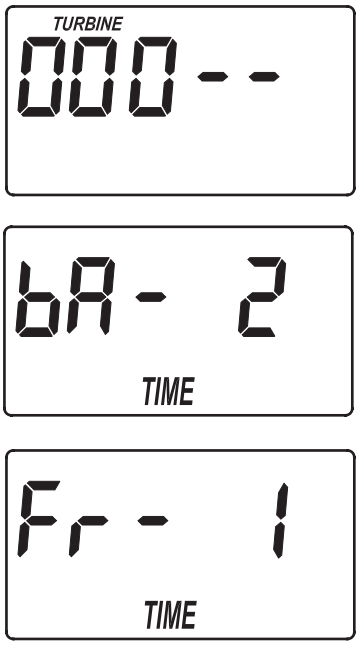


FIG. 18

SETTING THE FREQUENCY OF AUTOMATIC CLEAN RINSE CYCLES

The Central Water Filtration System will automatically initiate Clean Rinse cycles based on how much water has been filtered through the system. The default is to run a Clean Rinse cycle after 3000 gallons have been filtered. The Clean Rinse cycle takes place at the preset time of day (1:00 a.m. is the default). The system also will initiate an automatic Clean Rinse cycle if no water has been run through the system in 14 days, to keep the filter bed fresh.

The Central Water Filtration System allows the frequency of automatic Clean Rinse cycles to be increased for systems where the water supply may have more sediment than in a typical municipal water supply. The table below shows the three settings available. The unit is shipped with “CLn 1” as the default.

Clean Rinse mode	Water supply type	Clean Rinses every
CLn 1	City water supply	3000 gallons
CLn 2	Well water with a light amount of sediment	2000 gallons
CLn 3	Well water with a high amount of sediment	1000 gallons

To change the frequency of Clean Rinse cycles:

1. Press the SELECT button a few times until “SET CLn” is shown in the display, along with a flashing number (1 - 3). The flashing number indicates the current setting.
2. Press the ↑ UP or ↓ DOWN buttons to change the number to the desired Clean Rinse mode (see table, above).
3. Press the SELECT button when the desired Clean Rinse mode is displayed. The display will change to the time of day.

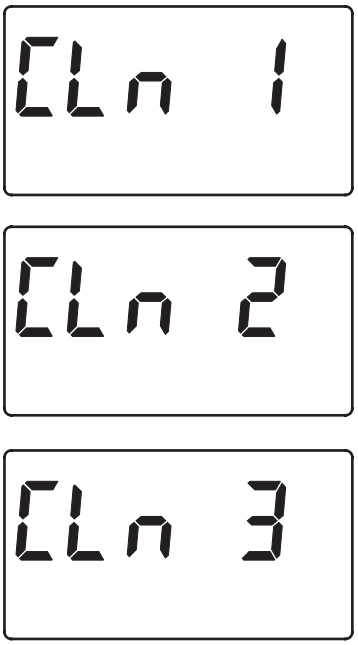


FIG. 19

OPERATING IN MANUAL CLEAN RINSE MODE

Clean Rinse cycles will run automatically, unless the automatic Clean Rinse function has been disabled. If this function has been disabled, it will be necessary to manually initiate any Clean Rinse cycles. It is recommended that a Clean Rinse cycle should be run at least once each month, or more frequently if necessary.

A manual Clean Rinse mode may be used when a drain (required for automatic Clean Rinse) is not available. However, it is recommended that automatic Clean Rinse be used if the drain requirements can be met.

IMPORTANT: During the Clean Rinse cycle, whether manually or automatically initiated, water will flow from the valve drain port at 3 gallons per min. for 3 minutes. If a permanent drain line has not been installed, provisions must be made for the drain flow prior to initiating a Clean Rinse cycle You must have empty containers ready that will hold at least 12 gallons of water.

DISABLING AUTOMATIC CLEAN RINSE

To disable the automatic Clean Rinse function:

1. Press and immediately release the RECHARGE button (pressing and holding the button a few seconds would initiate a Clean Rinse cycle).

2. “VAC” will flash in the display, as shown in Figure 20 indicating that the Central Water Filtration System is in the manual Clean Rinse mode (the automatic Clean Rinse function has been disabled).

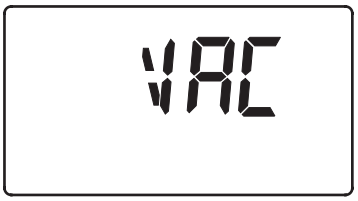


FIG. 20

MANUALLY STARTING A CLEAN RINSE CYCLE

To manually start a Clean Rinse cycle:

1. If the drain line is not set up to discharge into a drain, you must have empty containers ready that will hold at least 12 gallons of water.

2. Press and hold the RECHARGE button for a few seconds, until “RECHARGE NOW” flashes in the display, as shown in Figure 21.

3. When the Clean Rinse cycle is complete, the Central Water Filtration System will remain in the manual Clean Rinse mode.

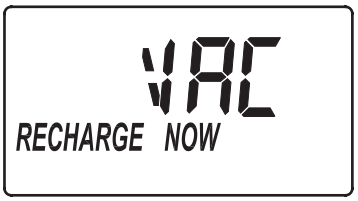


FIG. 21

RE-ENABLING AUTOMATIC CLEAN RINSE

To return the Central Water Filtration System to its automatic Clean Rinse function:

1. Press and immediately release the RECHARGE button.

2. The flashing “RECHARGE OFF” on the display should be replaced by the normal time of day screen, as shown in Figure 22.

FIG. 22

POWER OUTAGE MEMORY

If electrical power to the Central Water Filtration System is lost, “memory" built into the controller circuitry will keep all settings for up to eight hours. While the power is out, the display is blank and the Central Water Filtration System will not Clean Rinse.

When electrical power is restored, you have to reset the time of day only if the display is flashing. The Clean Rinse TIME never requires resetting unless a change is desired. Even if the clock is incorrect after a long power outage, the Central Water Filtration System works as it should to keep your water treated. However, Clean Rinse cycles may occur at the wrong time of day until you reset the clock to the correct time of day.

NOTE: If the Central Water Filtration System was in a Clean Rinse cycle when power was lost, it will now finish the cycle.

VACATIONS AND EXTENDED PERIODS OF NO WATER USE

If your Central Water Filtration System will not be used for an extended period of time (several months), please follow one of these recommendations:

- If the water supply to the unit is not turned off, and the automatic Clean Rinse function has not been disabled, then no further actions are required. The Central Water Filtration System will clean itself every 14 days if no water has run through it.
- If you do not want Clean Rinse cycle to be running automatically while you are gone, it is recommended that you unplug the Central Water Filtration System and either shut off the water supply or place the bypass valve(s) into the bypass position.
- If the Clean Rinse cycle cannot be automatically run, due to the water supply being shut off, the transformer being unplugged or the automatic Clean Rinse function being disabled, then it is recommended that a minimum of 2 manually initiated Clean Rinse cycles be performed when the system is placed back into operation (see Start a Clean Rinse Cycle section on Page 13).
- In any installation where there is a possibility of freezing, the Central Water Filtration System should be disconnected and the water drained (see Protect the Central Water Filtration System from Freezing section).

DRAIN ALL WATER FROM CENTRAL WATER FILTRATION SYSTEM

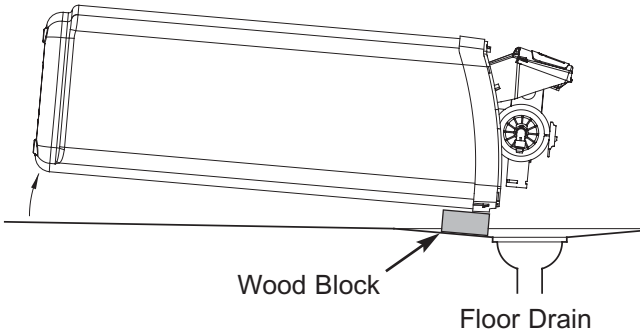


FIG. 23

PROTECT THE CENTRAL WATER FILTRATION SYSTEM FROM FREEZING

If the Central Water Filtration System is installed where it could freeze (summer cottage, lake home, etc.), you must drain all water from it to stop possible freeze damage. If the system freezes, cracks may develop in plastic parts, which will leak causing damage.

To drain the unit:

1. Close the shut-off valve on the house main water pipe, near the water meter or pressure tank.
2. Open a faucet in the filtered water pipes to vent pressure in the unit.
3. Move the stem in the single bypass valve to bypass. Close the inlet and outlet valve in a 3 valve bypass system, and open the bypass valve. If you want water in the house pipes again, reopen the shut-off valve on the main water pipe.
4. Unplug the transformer at the wall outlet. Take off the drain hose if it will interfere with moving the Central Water Filtration System into position over the drain.
5. Remove the large holding clips at the Central Water Filtration System inlet and outlet (See Figures 4 & 5 on Page 6). Separate the unit from the copper tubes, or from the bypass valve.
6. Lay a piece of 2 inch thick board near the floor drain (See Figure 23).
7. Move the Central Water Filtration System close to the drain. Slowly and gently, tip it over until the rim rests on the wood block with the inlet and outlet over the drain (See Figure 23). Do not allow the unit's weight to rest on the inlet and outlet fittings or they may break.
8. Tip the bottom of the Central Water Filtration System up a few inches and rest it on something like a wood block that will allow water to drain. Rest the bottom on two stacked wood blocks. Leave the unit laying like this until you are ready to use it. Plug the inlet and outlet with clean rags to keep dirt, bugs, etc. out.

TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	CORRECTION
Water has black or gray color	(NEW SYSTEM) Start up procedure has not been completed	Run start up procedure (See Page 11) or run consecutive Clean Rinse cycles (See Page 13) until water color returns to normal.
	(NOT A NEW SYSTEM) Normal abrasion of filtration media	Manually initiate a Clean Rinse cycle (See Page 13).
Low water pressure at house faucets	Sediment filter screen is clogged	Manually initiate a Clean Rinse cycle (See Page 13).
		If the filter screen is frequently plugging, it may be necessary to adjust the frequency of Clean Rinse cycles or add a sediment filter upstream (See Figure 2 on Page 4).
	Filtration media pores are blocked	Manually initiate a Clean Rinse cycle (See Page 13).
		If the filtration media pores are frequently blocking, it may be necessary to increase the frequency of Clean Rinse cycles or add a sediment filter upstream (See Figure 2 on Page 4).
Water has objectionable taste and/or odor	System is in bypass	Move bypass valve(s) to normal operating (non-bypass) position.
	Filtration media pores are blocked	Manually initiate a Clean Rinse cycle (See Page 13).
		If the filtration media pores are frequently blocking, it may be necessary to increase the frequency of Clean Rinse cycles or add a sediment filter upstream (See Figure 2 on Page 4).
No water flow to drain during Clean Rinse cycle	System is in bypass	Move bypass valve(s) to normal operating (non-bypass) position.
	Drain flow control is plugged	Clean drain flow control (See Page 21).
	Drain hose is plugged or kinked	Straighten drain hose.
	Transformer is unplugged from wall electrical outlet (display will be blank)	Check for loss of power and correct.
Clean Rinse cycle does not run automatically	If display reads “VAC”, then Clean Rinse function has been disabled	Press and release the RECHARGE button until display no longer reads “VAC” (See Page 15).
	If display is blank, transformer may be unplugged from wall electrical outlet	Check for loss of power.
Clean Rinse cycle does not run at the programmed time of day	If time display is flashing, then a long power loss caused the clock to lose its time setting	Reset the clock to the correct time of day (See Page 12).
Valve motor stalled or clicking	Motor is defective or inner valve defect is causing high torque on the motor	Replace rotor/seal kit (instructions included with kit).
		Replace motor and switch (See parts list at end of this manual).

TROUBLESHOOTING GUIDE (cont.)

PROBLEM	CAUSE	CORRECTION
"VAC" is flashing in the display	The automatic Clean Rinse function has been disabled (See Page 15)	If you want the Clean Rinse function to run automatically, press and release the RECHARGE button until display no longer reads "VAC" (See Page 15).
Error Code E1, E3 or E4 appears	Wiring harness or connections to position switch	Replace wiring harness or connection to position switch (See parts list at end of this manual).
	Switch	Replace switch (See parts list at end of this manual).
	Valve defect causing high torque	Replace rotor/seal kit (instructions included with kit).
	Motor inoperative	Replace motor (instructions included with motor)
Error Code E5 appears	Electronic control	Replace electronic control board (PWA) (instructions included with PWA).

Procedure for removing error code from display:

1. Unplug transformer from electrical outlet.
2. Correct problem.
3. Plug in transformer.
4. Wait 6 minutes. The error code will return if the problem was not corrected.

Assistance from customer service may be needed with the following:

PROBLEM	CAUSE	CORRECTION
Water running to the drain (while unit is not in the Clean Rinse cycle)	Inner valve defect causing leak	Replace seals and rotor
Filter media in household plumbing	Crack in distributor or riser tube	Replace distributor or riser tube.

TROUBLESHOOTING - INITIAL CHECKS

Always make these initial checks first:

1. Is display blank? Check power source.
2. Is Error code displayed? If so, go to "Automatic Electronic Diagnostics" on the next page.
3. Is correct time displayed? If not, recharges occur at the wrong time. Set current time (See Page 12.)
4. Are plumbing bypass valve(s) in service position (See Figures 32 & 33 on Page 22)?
5. Are inlet and outlet pipes connected to the Central Water Filtration System inlet and outlet respectively?
6. Is valve drain hose free of kinks and sharp bends, and not elevated over 8 feet above the floor.

If no problem is found after making the initial checks, proceed to "Manual Advance Diagnostics" on the next page.

AUTOMATIC ELECTRONIC DIAGNOSTICS

This Central Water Filtration System has a self-diagnostic function for the electrical system (except input power). The controller monitors electronic components and circuits for correct operation. If a malfunction occurs, an error code appears in the display.

The troubleshooting chart on the previous page shows the error codes that could appear, and the possible malfunctions for each code.

While an error code appears in the display, all buttons are inoperable except the SELECT button. SELECT remains operational so the service person can perform the Manual Advance Diagnostics, see below, to further isolate the problem.

MANUAL ADVANCE DIAGNOSTICS

Use the following procedures to advance the Central Water Filter through the recharge cycles to check operation.

Remove the top cover by unlocking the two tabs along the back side and lifting, to observe cam and switch operation during valve rotation.

1. Press and hold SELECT for 3 seconds until “000” shows in the display.

2. The letter “P” and a dash (or dashes) indicate POSITION switch operation (See Figure 24). If the letter appears, the switch is closed. If the dash shows, the switch is open.

3. Use the RECHARGE button to manually advance the valve into each cycle and check correct switch operation.

4. While in this diagnostic screen, the following information is available and may be beneficial for various reasons. This information is retained by the computer from the first time electrical power is applied to the electronic controller.

a. Press the ↑ UP button to display the number of days this electronic control has had electrical power applied (See Figure 25).

b. Press the ↓ DOWN button to display the number of recharges initiated by this electronic control since the code number was entered (See Figure 26).

5. Press and hold the SELECT button until the model code (“EC”) shows in the display. This code identifies the filter model. If the wrong number shows, the filter will operate on incorrect configuration data.

6. To change the code number, press the ↑ UP or ↓ DOWN button until the correct code shows.

7. To return to the present time display, press the SELECT button.

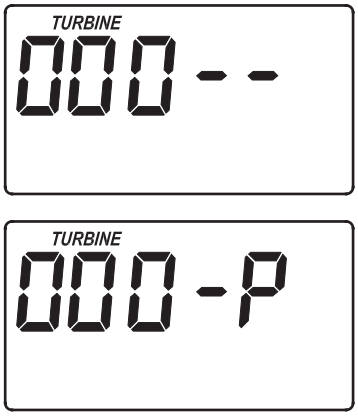


FIG. 24

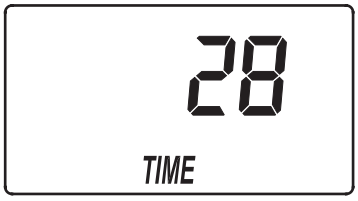


FIG. 25

FIG. 26

CLEANING THE SEDIMENT FILTER SCREEN

This procedure is not required if the Central Water Filtration System is operating normally. It should be performed only if a problem with low water pressure at household faucets is encountered, as detailed in the troubleshooting table on Page 17.

1. Press and hold the RECHARGE button for a few seconds, until "RECHARGE NOW" begins to flash in the display.
2. When water begins to flow from the valve drain hose, place the bypass valve(s) in bypass position (See Figures 32 & 33 on Page 22).

IMPORTANT: Be sure to do Steps 1 and 2, as instructed, to relieve water pressure in the tank.

3. Unplug the transformer from the wall electrical outlet.
4. Remove the top cover by unlocking the two tabs along the back side and lifting.
5. Pull the two clips at the inlet and outlet fittings. Slide the adaptors, or bypass valve, from the Central Water Filtration System valve.
6. Remove the clamp retainers (2) and clamp sections (2) that hold the valve to the tank (See Figure 28). Lift upward to remove the valve.
7. Remove the small o-ring (See Figure 29).
8. Remove the screen from the top distributor. Rinse off the screen.
9. Use water to flush the tank top opening. Then, replace the top distributor and o-ring. Be sure to locate o-ring seal correctly (See Figure 29).
10. Install the valve assembly and retaining clamps. Double check to be sure clamps and retainers are securely fastened in place.
11. Referring to the installation instructions, reconnect the Central Water Filtration System to the plumbing. Be sure the plumbing is held firmly in place in the valve inlet and outlet.
12. Return the plumbing bypass valve(s) to normal operating position (non-bypass).
13. Plug the transformer back into the wall electrical outlet. The Central Water Filtration System will complete the Clean Rinse cycle initiated in Step 1, and will automatically return to normal operation.

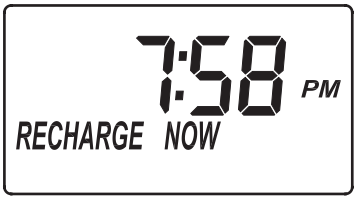


FIG. 27

REMOVING VALVE ASSEMBLY

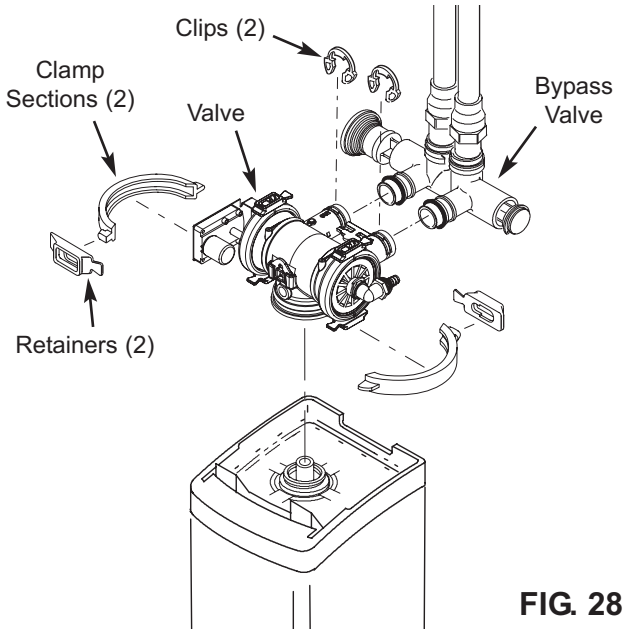


FIG. 28

REASSEMBLING FILTER SCREEN

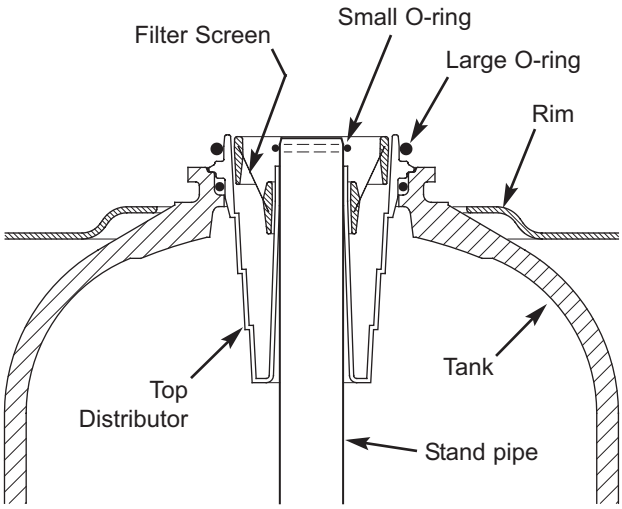


FIG. 29

CLEANING THE DRAIN FLOW CONTROL

This procedure is not required if the Central Water Filtration System is operating normally. It should be performed only if a problem with lack of water flow to drain is encountered, as detailed in the troubleshooting table on Page 17.

1. Remove the clip holding the drain fitting into the valve (See Figure 30).
2. Remove the drain fitting from the valve
3. Clear any obstruction.
4. Reinstall the drain fitting into the valve.
5. Reinstall the clip to secure the drain fitting in the valve.

REMOVING DRAIN FITTING TO CLEAN FLOW CONTROL

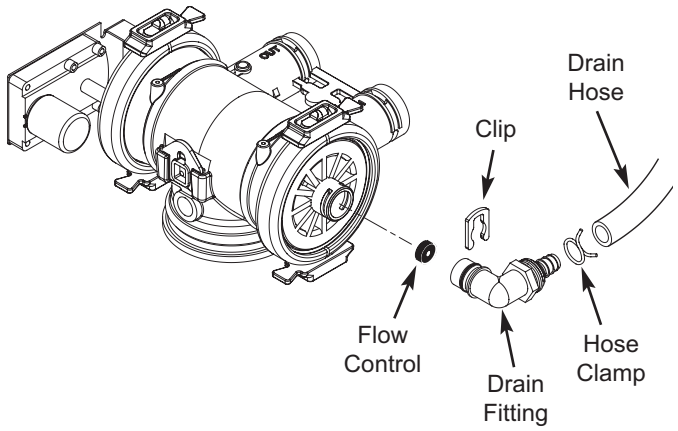


FIG. 30

WIRING SCHEMATIC

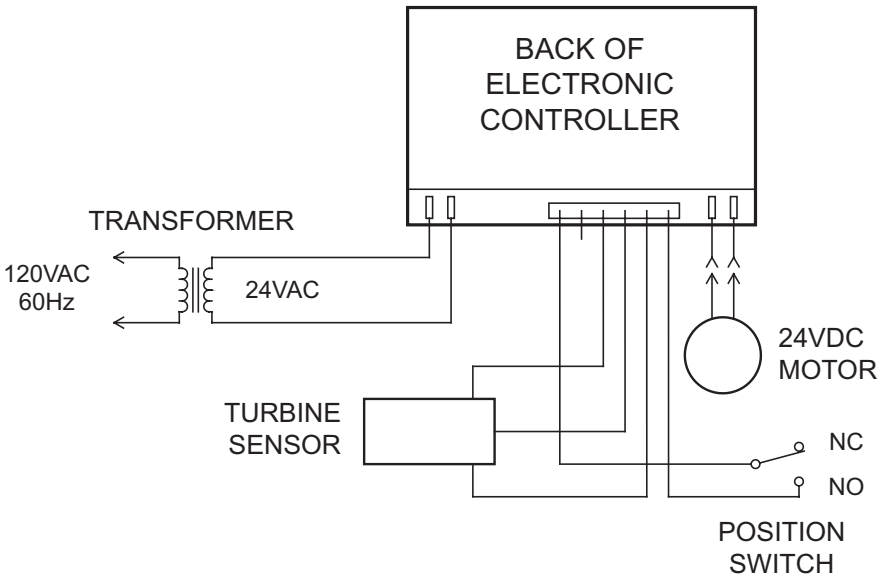


FIG. 31

RELIEVING WATER PRESSURE WITH THE BYPASS VALVE(S)

CAUTION: Always relieve water pressure in the Central Water Filtration System, as described below, before removing parts from the valve or mineral tank.

DE-PRESSURIZE

1. Put bypass valve(s) into **Bypass** position.
2. Place filter valve in **Backwash** position by pressing and holding the RECHARGE button for a few seconds to start a recharge.

PRESSURIZE

1. Put bypass valve(s) into **Service** position.
2. Return filter valve to **Service** position by pressing the RECHARGE button several times to advance the valve through the remaining cam positions of the recharge cycle.

ALTERNATE METHODS:

3-VALVE BYPASS (See Figure 32)

DE-PRESSURIZE

1. Close the INLET valve.
2. Open HOT and COLD filtered water house faucets.
3. Close the OUTLET valve and open the BYPASS valve.
4. Close all house faucets.

PRESSURIZE

1. Open HOT and COLD house faucets.
2. Close the BYPASS valve and open the OUTLET valve.
3. **Slowly**, open the INLET valve.
4. Close all house faucets.

ECOWATER SYSTEMS BYPASS VALVE

(See Figure 33)

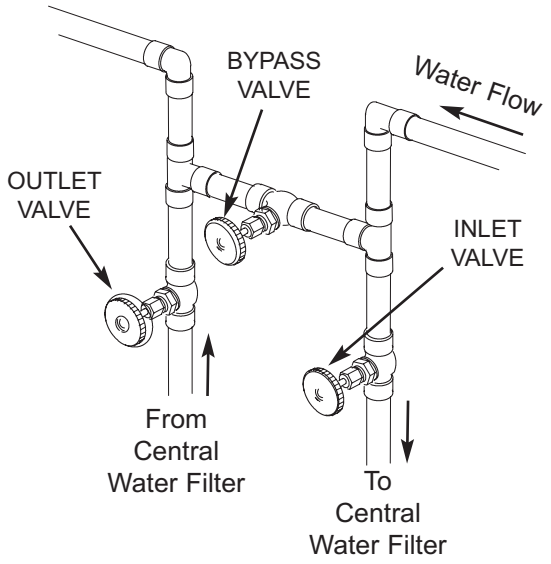
DE-PRESSURIZE

1. Close the house main water supply valve.
2. Open HOT and COLD filtered water house faucets.
3. Push the bypass valve handle to **Bypass** position.
4. Optional: For unfiltered water bypass to house faucets, reopen the main water supply valve.

PRESSURIZE

1. Open main water supply valve if it is closed.
2. Open HOT and COLD house faucets.
3. Pull the bypass valve handle to **Service** position.
4. Close all house faucets.

3-Valve Bypass



For **Service**
Close Bypass Valve.
Open Inlet & Outlet Valves.

For **Bypass**
Open Bypass Valve.
Close Inlet & Outlet Valves.

FIG. 32

EcoWater Systems Bypass Valve

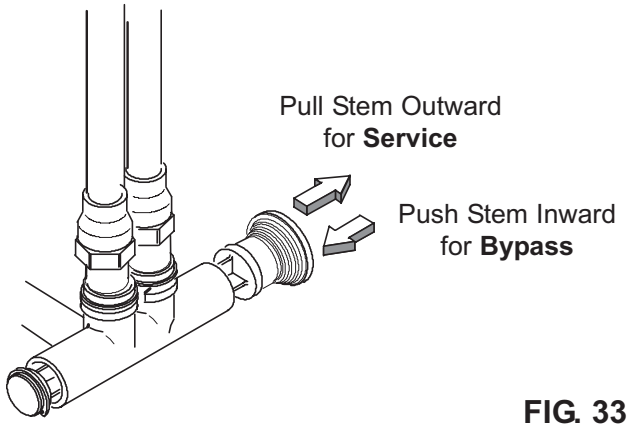
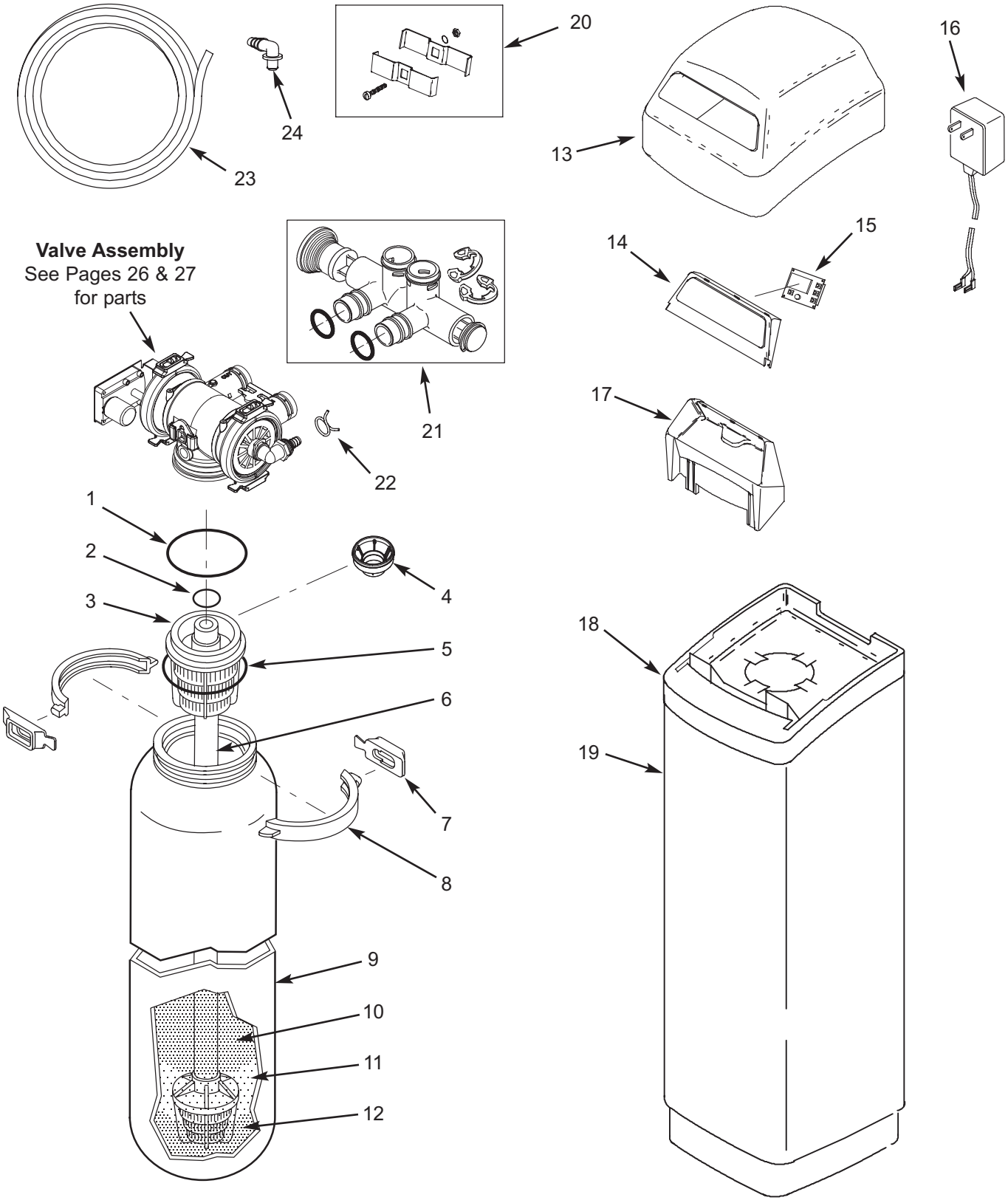


FIG. 33

ECOWATER SYSTEMS CENTRAL WATER FILTER ASSEMBLY

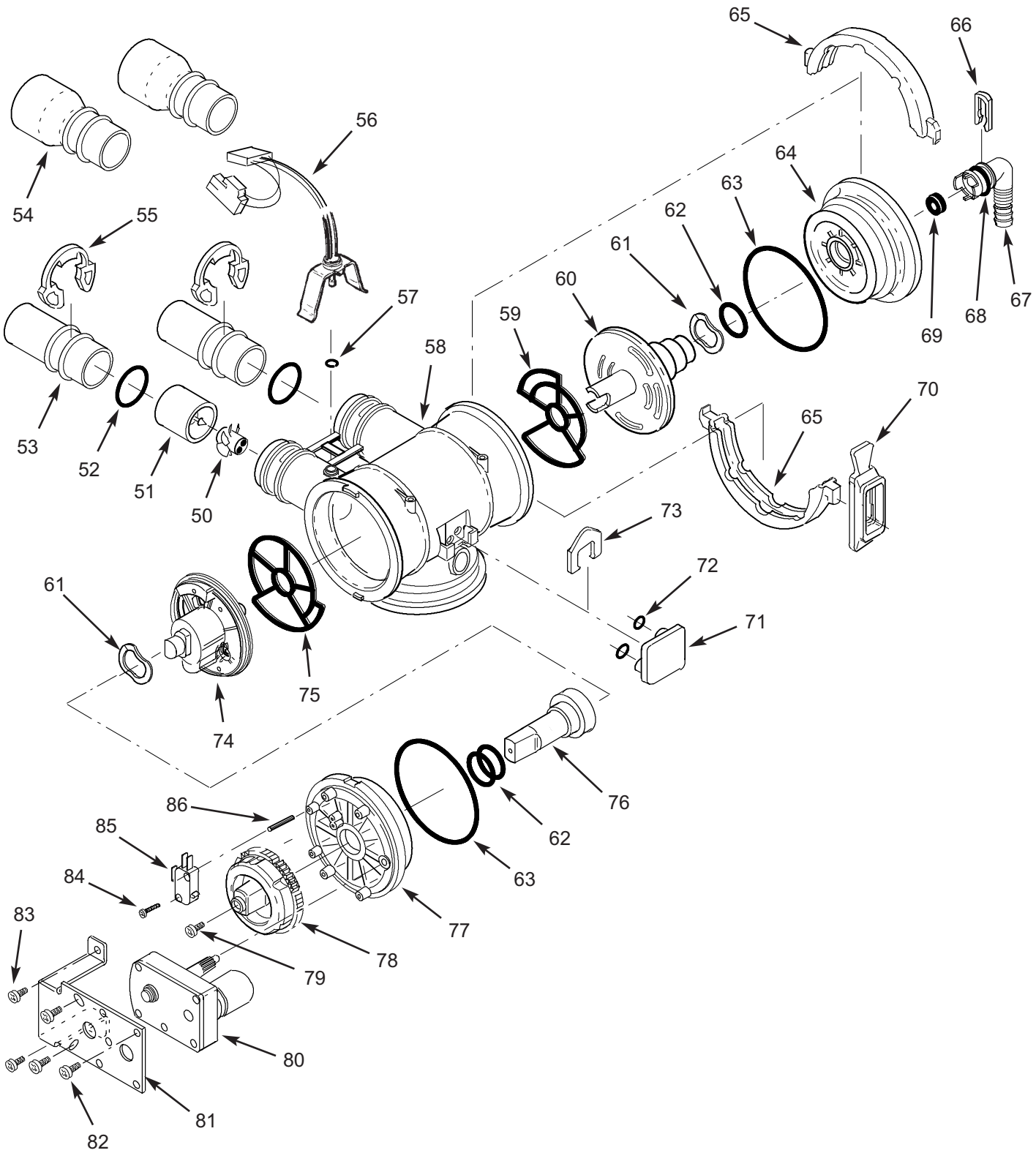


ECOWATER SYSTEMS CENTRAL WATER FILTER ASSEMBLY

Key No.	Part No.	Description
1	7170296	O-Ring, 2-7/8” x 3-1/4”
2	7170254	O-Ring, 13/16” x 1-1/16”
3	7077870	Top Distributor
4	7265025	Filter Screen
5	7170270	O-Ring, 2-3/4” x 3”
6	7105047	Repl. Bottom Distributor
7	7088033	Retainer Clip (2 req.)
8	7176292	Clamp Section (2 req.)
9	7304235	Repl. Mineral Tank, 8” x 35”
10	7301619	Activated Carbon, 30 lbs. (12 lbs. req.)
11	0501783	Filter Sand, 10 lbs. (5 lbs. req.)
12	7124415	Gravel, 17 lbs. (6 lbs. req.)
13	7210478	Cover
14	7210509	Faceplate (order decal below)
-	7308970	Faceplate Decal
15	7308938	Repl. Electronic Control Board (PWA)
16	7275907	Transformer
17	7211173	Support, Faceplate
18	7274286	Rim
19	7218638	Outer Shroud Tank
20	7248706	Ground Clamp Kit
21	7214383	Bypass Valve ❶
22	7112882	Hose Clamp ❶
23	7108118	Drain Hose, 1/2” I.D. ❶
24	1103200	Adaptor Elbow ❶

❶ Not included

VALVE ASSEMBLY



VALVE ASSEMBLY

Key No.	Part No.	Description
50	7101548	Turbine Assembly
51	7094898	Turbine Support Assembly
52	7170262	O-Ring, 1.109” x 1.387” (2 req.)
53	7077642	Copper Tube, 1” pipe (2 req.)
54	7234553	Copper Tube, 1-1/4” pipe (optional) ❶
55	7089306	Clip Retainer (2 req.) ❶
56	7276084	Wire Harness w/pos. switch conn.
57	0900060	O-Ring, 3/8” x 1/2”
58	7159949	Disc Valve Housing
59	7078282	Inlet End Seal ❷
60	7214286	Inlet Disc ❷
61	7058216	Wave Washer (2 req.)
62	7170220	O-Ring, 3/4” x 15/16” (3 req.) ❷
63	7170296	O-Ring, 2-7/8” x 3-1/4” (2 req.)
64	7077498	Inlet End Cap
65	7176292	Clamp Section (4 req.) ❸
66	7142942	Clip, Drain
67	7219066	Drain Nipple
-	7141239	Drain Hose Adaptor (optional) ❶

Key No.	Part No.	Description
68	7170327	O-Ring, 5/8” x 13/16”
69	7097969	Flow Plug, Fast Rinse, 3.0 gpm
70	7088033	Retainer, Clamp (4 req.) ❸
71	7100940	Plug, Aspirator Port
72	7170319	O-Ring, 1/4” x 3/8” (2 req.)
73	7081201	Clip, Nozzle & Venturi
74	7214278	Outlet Disc ❷
75	7078274	Outlet End Seal ❷
76	7091329	Driver, Outlet Disc
77	7159965	Outlet End Cap
78	7283497	Cam & Gear
79	7203104	Washerhead Screw, #8-18 x 1/2”
80	7281275	Motor, incl. Key No. 81
81	7289702	Bracket, Motor
82	7168524	Screw, #10-32 x 5/16” (3 req.)
83	7103972	Screw, #8-18 x 7/16” (2 req.)
84	7140738	Screw, #4-24 x 3/4”
85	7145186	Switch
86	7140746	Expansion Pin

❶ Not included
❷ Included in Disc Kit, #7218688
❸ Not all parts are shown

LIMITED WARRANTY

EcoWater Systems LLC Advantage Warranty

Central Water Filtration System

Congratulations! You have just purchased the highest quality water conditioning product on the market. To register your warranty, complete the enclosed Warranty Registration Card and mail it within 30 days of purchase.

To whom is this warranty extended?

EcoWater Systems LLC warrants its products to the original owner and guarantees that the products will be free from defects in materials and workmanship from the original date of installation.

How does my warranty work?

If, during the respective warranty period, a part proves, after inspection by EcoWater, to be defective, EcoWater will, at its sole option repair or replace that part at no charge, other than normal shipping, installation or service charges.

What is covered by the warranty?

EcoWater Systems LLC guarantees that,

for the LIFETIME of the original owner, the MINERAL TANK will not rust, corrode, leak, burst, or in any other manner fail to perform its proper function and that,

for the LIFETIME of the original owner, the media bed will be free of defects in materials and workmanship and will perform its proper function and that,

for a period of FIVE YEARS after installation, the VALVE BODY will be free of defects in materials and workmanship and will perform its proper function and that,

for a period of THREE YEARS after installation, the ELECTRONIC FACEPLATE will be free of defects in materials and workmanship and will perform its normal function and that,

for a period of ONE year after installation, ALL OTHER PARTS will be free of defects in materials and workmanship and will perform their normal functions.

How do I obtain warranty service?

Should you need service, your local, independent EcoWater Dealer is only a phone call away.

PHONE:_____

To obtain warranty service, notice must be given, within thirty (30) days of the discovery of the defect, to your local EcoWater Systems dealer.

If I need a part replaced after the factory warranty expires, is the replacement part warranted?

Yes, EcoWater Systems LLC warrants FACTORY REPAIRS as well as all REPLACEMENT PARTS for a period of 90 DAYS. This warranty does not include normal shipping, installation or service charges.

General Provisions

The above warranties are effective provided the water filter is operated at water pressures not exceeding 125 psi, and at water temperatures not exceeding 120°F; provided further that the water filter is not subject to abuse, misuse, alteration, neglect, freezing, accident or negligence; and provided further that the water filter is not damaged as the result of any unusual force of nature such as, but not limited to, flood, hurricane, tornado or earthquake. EcoWater Systems LLC is excused if failure to perform its warranty obligations is the result of strikes, government regulation, materials shortages, or other circumstances beyond its control.

*THERE ARE NO WARRANTIES ON THE WATER FILTER BEYOND THOSE SPECIFICALLY DESCRIBED ABOVE. ALL IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, ARE DISCLAIMED TO THE EXTENT THEY MIGHT EXTEND BEYOND THE ABOVE PERIODS. THE SOLE OBLIGATION OF ECOWATER SYSTEMS LLC UNDER THESE WARRANTIES IS TO REPLACE OR REPAIR THE COMPONENT OR PART WHICH PROVES TO BE DEFECTIVE WITHIN THE SPECIFIED TIME PERIOD, AND ECOWATER IS NOT LIABLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES. NO ECOWATER DEALER, AGENT, REPRESENTATIVE, OR OTHER PERSON IS AUTHORIZED TO EXTEND OR EXPAND THE WARRANTIES EXPRESSLY DESCRIBED ABOVE.

Some states do not allow limitations on how long an implied warranty lasts or exclusions or limitations of incidental or consequential damage, so the limitations and exclusions in this warranty may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state. This warranty applies to consumer-owned installations only.